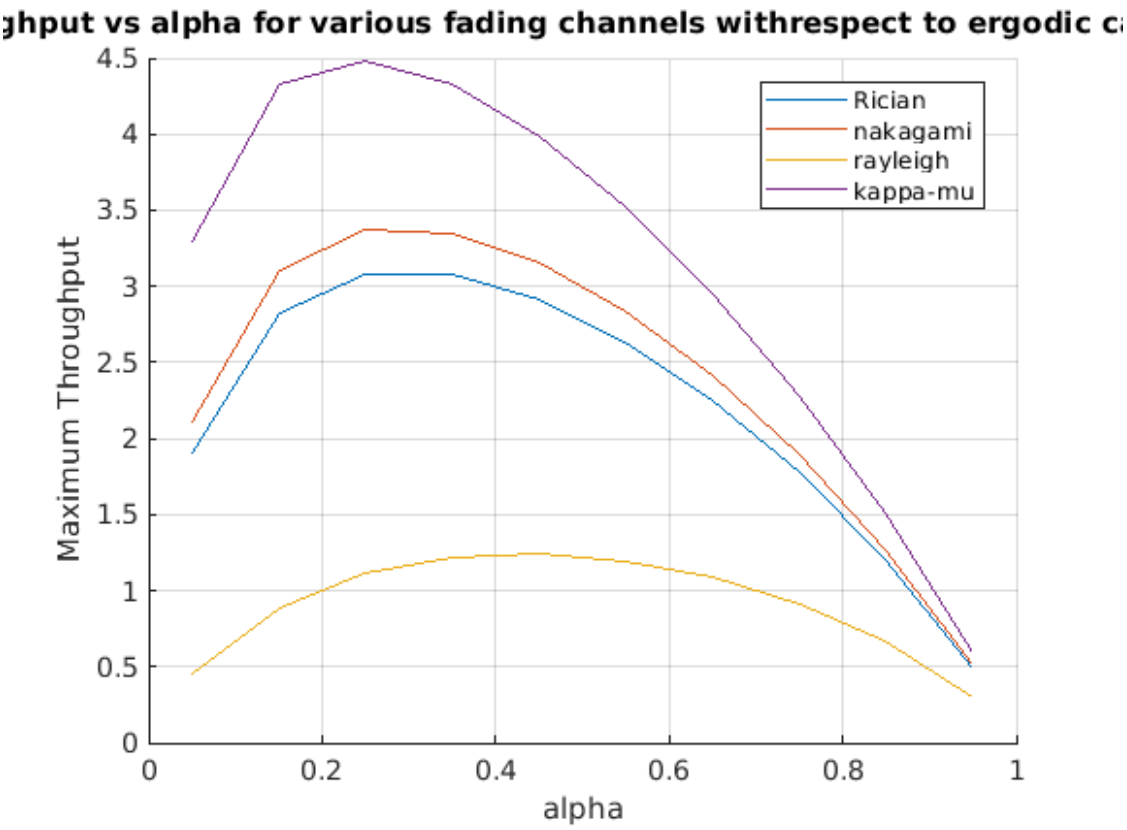
```
% varying wrt Alpha
% k1 and k2 kappa values
% g1 and g2 are SNR values
% y is gamma th
% p is phi
clear;
%k1=input("Enter value for kds");
%k2=input("enter value for ksd");
k1=2;
k2=2;
%z=1/exp(k1+k2);
 snr_db=10;
 snr= 10^(0.1*snr_db);
s=0;
a1=1;
a2=1;
k=1;
res=1;
hold on;
 fprintf("Rician k=2")
for alpha= 0.05:0.1:0.95
h= alpha/(1-alpha);
p= a1*a2/(h*snr);
for i= 1:10
for j= 1:10
s= s+ (((k1^(i-1))*(k2^(j-1)))/
((factorial(i-1)*factorial(j-1))^2))*meijerG([1,1,-i+1,-j+1],[0,1],
[1,1,0],[0],1/p);
end
end
res= (1-alpha)*s*exp(-k1-k2)/(log(2));
%disp( " g1 value " +g1); %disp( " a1 value " +a1);
%disp( " res is "+res);
fin(k)=res;
res=1;
s=0;
k=k+1;
end
qw= 0.05:0.1:0.95;
plot(qw,fin)
%set(gca,'Yscale','log')
grid on
xlabel("alpha")
ylabel("Maximum Throughput")
title("Maximum Throughput vs alpha for various fading channels
 withrespect to ergodic capacity (snr_dB=10)")
k1=0;
k2=0;
s=0;
h= alpha/(1-alpha);
a1=1;
a2=1;
```

```
m=2;
k=1;
res=1;
fprintf("nakagami m=2")
for alpha=0.05:0.1:0.95
 h= alpha/(1-alpha);
p= a1*a2/(h*snr);
for i= 1:10
for j= 1:10
s= s+ (((k1^(i-1))*(k2^(j-1)))/((factorial(i+m-1)*factorial(j
+m-1))*((factorial(i-1)*factorial(j-1)))))*meijerG([1,1,-i-m+1,-j-m
+1],[0,1],[1,1,0],[0],1/p);
end
end
res= (1-alpha)*s*exp(-k1-k2)/(log(2));
fin(k)=res;
res=1;
s=0;
k=k+1;
end
qw= 0.05:0.1:0.95;
plot(qw,fin)
k1=0;
k2=0;
s=0;
a1=1;
a2=1;
k=1;
res=1;
fprintf("Rayleigh")
for alpha= 0.05:0.1:0.95
h= alpha/(1-alpha);
p= a1*a2/(h*snr);
for i= 1:10
for j= 1:10
s= s+ (((k1^(i-1))*(k2^(j-1)))/
((factorial(i-1)*factorial(j-1))^2))*meijerG([1,1,-i+1,-j+1],[0,1],
[1,1,0],[0],1/p);
end
end
res= (1-alpha)*s*exp(-k1-k2)/(log(2));
fin(k)=res;
res=1;
s=0;
k=k+1;
end
qw= 0.05:0.1:0.95;
plot(qw,fin)
k1=2;
k2=2;

%z=1/exp(k1+k2);
s=0;
a1=1;
```

```
a2=1;
k=1;
res=1;
m=2;
 fprintf("K-Mu k=2 , Mu=2")
for alpha= 0.05:0.1:0.95
h= alpha/(1-alpha);
p= a1*a2/(h*snr);
for i= 1:10
for j= 1:10
s= s+ ((k1^(i-1))*(k2^(j-1)))/
((factorial(i-1)*factorial(j-1))*(factorial(i+m-1)*factorial(j
+m-1)))*meijerG([1,1,-i+1-m,-j+1-m],[0,1],[1,1,0],[0],1/p);
end
end
res= (1-alpha)*s*exp(-k1-k2)/(log(2));
fin(k)=res;
res=1;
s=0;
k=k+1;
end
qw= 0.05:0.1:0.95;
plot(qw,fin)
 legend({'Rician','nakagami','rayleigh','kappa-mu'},'Location',"best")
```

Rician k=2nakagami m=2RayleighK-Mu k=2 , Mu=2



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